

## Weather Note

### OBSERVATION OF A CURIOUS ELECTRICAL PHENOMENON IN HAWAII

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#### 1. INTRODUCTION

Nature follows her own schedule, not ours; and her phenomena are to be seen only by chance, not by appointment. One may simulate in the laboratory the appearance of a tornado or of lightning, but the realities are to be encountered only in the world outside.

Thus, neither of the authors has ever observed ball lightning, although they would appear to share this deficiency with ample company. In fact, according to Schonland [1], "it appears that no professional observers of the weather, such as meteorologists, have ever seen a fireball, though they must have watched, in all, many thousands of lightning flashes." Hence the student of these uncommon phenomena is frequently dependent for his knowledge of their appearance and behavior on the accounts of persons trained neither in the subject itself nor in the skills of accurately making and recording observations. The hazards in being thus dependent are obvious, and only partly to be overcome by a judicious selection of the reports; but the alternative is to regard this class of events as undeserving of serious attention. In this respect, these meteorological occurrences resemble more the reports of psychic phenomena, accidents, crimes, or other unreproducible events, which can be reconstructed only from evidence, and in which the credibility of the witness must be as carefully weighed as the nature of the report.

The meteorologist to whose attention accounts of this kind come has, therefore, the obligation to look into their authenticity—whenever possible by visiting the scene of the incident and interviewing witnesses—and then to make or assemble whatever observations seem relevant and to bring the results of his investigation to the attention of others who may be better able to interpret or evaluate them.

This is, in fact, the obligation which prompts the authors to publish the following example of such an incident and its investigation.

#### 2. OBSERVATION

It began in the form of a letter which reached Pacific Regional Headquarters in late September 1965 from a

Mrs. M., a long-time resident of Honolulu. After apologizing for not knowing to whom her communication should properly have been addressed, the writer says,

I am not hunting publicity so I have hesitated about telling you of my strange experience last Wednesday. After due thought I have decided that you should have the information for your files. Also you can readily see that, being no scientist of any kind, I am still keen on acquiring knowledge.

She then goes on to ask a number of penetrating questions about the "life span", dimensions, behavior and effects of lightning, and continues,

How I wish I had realized I was witnessing one of Dame Nature's phenomena so I had really paid closer attention to it. If you would like to come and see the place where this happened . . . you may come but *no* publicity, please.

Then,

I am 92, belong to the Class of 1896, Stanford University.

Mrs. M's description of the incident itself begins with its physical setting—her own home. It is so well put, and so revealing of its author's personality and perceptiveness, that it is given here with only minor deletions, indicated by (. . .).

My patio is 36 ft. x 16½ ft., faces ewa [west] and since it is longer than the garden it has a brick wall—about a foot high—around it. The roof is so steep that, unless you stand at the wall, you cannot see the sky. Across the open end is a thick mock orange hedge about three feet high. Just over the wall, in an open space, is a birdbath, not more than eight feet from the wall. The patio is paved with hand-made bricks which are so porous it is necessary to protect the lauhala mats with impervious congoileum mats beneath them.

On Wednesday afternoon, September 22, 1965, about 2 o'clock, there was a light thunderstorm . . . with some rain. Then it cleared up, although it remained dull and the sun did not break through the clouds.

Around 5:00 p.m. . . . I was standing less than two feet from the little wall . . . with my face to the birdbath . . . .

Suddenly, around the corner of the mock orange hedge, came the head of the lightning, crumpled with lots of black in the folds. As it came closer it was wider until at the end of its twenty-five foot length it was about two feet wide where it was chopped off clean. It was solid—not diaphanous or transparent or ethereal. It was the most brilliant, eye-dazzling electric blue without sparkle or scintillation.

It moved fast just above the ground and about half-way between me and the birdbath. The bowl of the birdbath, but not the ped-

estal, was visible. While it gave me the impression of being stiff and flat it might have been tubular. It showed no signs of elasticity, no flexibility; definitely it was not sinuous nor did it undulate. I had no sensation of heat. Had it been white hot, I would have been singed since it came so close to me. It was without a doubt a dying lightning, but what made it die and in my garden?

The head was making straight for the bedroom wing through a mass of lau wai ferns. The tail, if you can call a straight up and down cut a tail, was just leaving the open space when someone took out the pin of the tail-gate of Heaven's largest dump cart and sent tons and tons of concrete blocks, old automobiles, bulldozers, steam engines, worn out battleships hurtling down upon the corner of the patio where I was standing. My pet toy English pug barked, ran over to the wall where the lightning had disappeared and barked furiously.

. . . I do not remember that it had any odor. And I was not aware that it made any noise until I heard meat sizzling on the stove. My unconscious mind nudged me, "Hear that? That's how the lightning sounded".

. . . I clearly saw the lightning even as the thunder crashed.

Later letters, one thanking the authors for their visit and another written to Dr. E. J. Workman\* at their suggestion, contained a few additional details.

If you take a long narrow strip of paper . . . and crumple the end a little, you will notice folds going into wrinkles, and the wrinkles smooth out; you see the strip is wider. That is the exact shape; no ball about it. The folds were bright shiny patent leather black and the rest a brilliant-dazzling electric blue.

. . . I called that the head arbitrarily because it led the way. It was in a hurry but you could not call it a flash and I think from the time the head came into view and the time the tail disappeared was three or four seconds. And the length—what I saw at one time—I guessed as 25 feet . . .

. . . It was stiff, it did not undulate or glitter and it looked flat—about 1½ in. to 2 in. thick. It was not transparent for I could not see the pedestal of the birdbath through it, but I could see the bowl above it. . . . It was about 6 inches above the grass and neither the grass nor the bushes through which it passed or the lau wai ferns where it disappeared were even singed. [My dog] sat at my feet watching it. She never moved until the thunder broke over our heads. Then she ran to . . . where the "head" disappeared and barked furiously. I am not sure that it went into the ground or whether part of it did and the rest just lay down and died.

. . . There was absolutely but the one clap of thunder and it was directly over my head and it came while I was still watching the tail . . . disappearing through the hibiscus bush. It was a brilliant electric blue—no red about it.

Several days after the receipt of her first letter, the authors telephoned Mrs. M. and arranged to visit her at her home. There they found a lady made frail by her 92 years but undiminished in mind and spirit. As she retold the incident which had brought them there, her clarity of expression and coherence of thought permitted no lingering doubt of her competence as an observer. The arrangement of the house, garden, and furniture were exactly as she had described them. It was evident that she had put into her letter everything that had seemed relevant, and could add little to it. She compared the appearance of the lightning with that of a "thick plank"

much wider than the head. It was "dazzling", but didn't hurt her eyes or leave an after-image.

A number of measurements were made by the authors. The distance from the hedge where the "head" had first appeared to the point where it had vanished among the ferns was 21 ft. The total length visible to Mrs. M. at one time may thus have been about 15 ft. The chair at whose side she had been standing was 12½ ft. from the birdbath in the garden, and her eye was about 58 in. above the ground. The height of the birdbath from the grass on which it stood to the base of the bowl was 31 in. and to the top of the bowl 35 in.

Mrs. M. again described the "lightning" as having been midway between herself and the birdbath, and was quite definite in recalling that while it had entirely concealed the base and pedestal, it had left the bowl clearly visible above it. This would have given it a width of approximately 15 in.

A most careful scrutiny of the grounds, and in particular of the place near the hedge where the lightning had first appeared, of the ferns through which it had passed, and of the spot where it had vanished revealed not the slightest trace of scorching or residue or of anything else at all out of the way.

### 3. METEOROLOGICAL CONDITIONS

Although the meteorological conditions at the time this incident occurred in no way "explain" it, they are included here for the sake of completeness.

The nearest Weather Bureau station to the scene is that at Honolulu International Airport, about 10 mi. to the northwest. Between 1505 and 1612 LST on the 22d, it was recording light rain showers. The 1655 LST observation reported a thunderstorm (the first of the day) to the southeast. The "remarks" column carries the following notation: Thunderstorm beginning 1652 to the southeast; occasional lightning cloud-to-ground to the southeast; heavy rain showers, east to southeast. (The actual entry read, "TB 52 SE OCNL LTG CG SE RW+ E-SE".) At 1710 LST, a thunderstorm (almost certainly the same one) was still being observed to the southeast, with rain showers of unknown intensity from northwest to northeast to southeast (T SE MOVG SE RWU NW-NE-SE). The 1731 LST observation noted that the thunderstorm had ended at 1713. No others were observed that day. Winds at the time were east-northeast, 10 to 11 kt.

The close correspondence in time, location, and nature of the official observation to that described by Mrs. M. is strikingly corroborative.

The radiosonde ascent nearest in time and place was that made at 1400 LST (23 0000 GMT) at Lihue, Kauai, nearly 100 mi. northwest of Mrs. M.'s home. It is quite undistinguished: a moist layer to 720 mb. topped by a small temperature inversion (1° C., to 710 mb.), and with much drier air above. Synoptically, the Hawaiian

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Islands lay within the diffuse pressure gradients of a col formed by high pressure centers to the northwest and, much more distantly, to the northeast. Within the col some suggestion of a convergence line or of an old cold front remained. From midnight until about 0800 LST on the 22d, surface winds at the airport station were light and northerly—possibly a land breeze. By 0900, however, they had been abruptly replaced by southwesterly winds of 9, and—by 1505—of 11 to 15 kt., and at 1535 these in turn gave way to the east-northeasterly flow which prevailed at the time the thunderstorm occurred.

#### 4. CONCLUDING REMARK

The authors have made no attempt to explain or to label Mrs. M.'s curious experience. Their intention has been solely to authenticate it and then to bring it to the attention of those better able to interpret it and to assess its possible contribution to our understanding of atmospheric electrical phenomena.

#### REFERENCE

1. Sir Basil Schonland, *The Flight of Thunderbolts*, Second Edition, Clarendon Press, Oxford, 1964, p. 55.

[Received January 3, 1966]